



Abstract

The extra-tropical cyclone called “Sitka hurricane” of October 1880 was one of the strongest storms ever to be recorded in the Gulf of Alaska. The *USS Jamestown*, a military ship moored off the Sitka harbour when the storm made landfall, observed an extremely low pressure of 958 hPa at sea-level and winds of 12 Beaufort. The aim of this study was to analyse this storm in version 2c of the Twentieth Century Reanalysis (20CRv2c), in which the *USS Jamestown* observations were not assimilated. Because the next assimilated pressure measurements are located more the 1000 km south of Sitka, the storm cannot be found in the 20CRv2c ensemble mean; but multiple ensemble members simulate wind speeds close to the observations. In particular, two ensemble members show a similar pressure and wind-speed evolution at the right time and location. However, they deviate in the observed passage of a cold front and in the location the cyclone deepening. Thus, none of the ensemble members reflects exactly the atmospheric state during the evolution and land-fall of the “Sitka hurricane”. Digitizing and assimilating additional early instrumental data, such as the log books from ships is crucial for future improvements of reanalysis products that reach into the 19th century.